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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/684,511	10/15/2003	Takeshi Nomura	396.43174X00	6734
20457 7590 11/28/2007 ANTONELLI, TERRY, STOUT & KRAUS, LLP 1300 NORTH SEVENTEENTH STREET SUITE 1800 ARLINGTON, VA 22209-3873			EXAMINER PATTERSON, MARC A	
			ART UNIT 1794	PAPER NUMBER
			MAIL DATE 11/28/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/684,511

Applicant(s)

NOMURA ET AL.

Examiner

Marc A. Patterson

Art Unit

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 and 16-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 16-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

NEW REJECTIONS

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 – 4, 7 and 16 – 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hata et al (U.S. Patent No. 6,033,749) in view of Hille et al (U.S. Patent No. 5,370,910) and Kay (U.S. Patent No. 5,713,842).

With regard to Claims 1 – 2, 7, 19 – 20 and 22, Hata et al discloses a fuel system comprising a fuel vessel (fuel tank (column 4, line 16), therefore a fuel vessel, comprising having a body comprising a thermoplastic resin (column 2, line 35 – 40); a layer of any resin is formed on the surface of the inside (column 5, line 14 – 18). Hata et al fail to disclose a resin which is a coating layer formed by curing a urethane resin composition comprising an active hydrogen containing compound and an organic polyisocyanate compound and having a gasoline permeability coefficient of $2 \text{ g} \cdot \text{mm}/\text{m}^2 \cdot \text{day}$ or less at 23 degrees Celsius and a relative humidity of 60% RH and having the claimed structure in the amount of 20% by weight or more.

Hille et al teach a coating comprising urethane resin (column 1, lines 7 – 10) comprising an active hydrogen containing compound (polyol; column 6, line 37) and an organic polyisocyanate compound that is the reaction product of an isocyanate and

polyfunction alcohol (column 3, lines 12 – 28; column 6, lines 35 – 38) and having a ratio of isocyanate groups to hydroxyl groups of 2 (column 6, lines 59 – 62), for the purpose of obtaining a coating having a good decorative effect (column 1, lines 15 – 17). One of ordinary skill in the art would therefore have recognized the advantage of providing for the composition of Hille et al in Hata et al, which is comprises a fuel tank, therefore an automobile part, depending on the desired heat resistance of the end product.

It therefore would have been obvious for one of ordinary skill in the art at the time Applicant's invention was made to have provided for a urethane resin composition comprising an active hydrogen containing compound and an organic polyisocyanate compound in Hata et al in order to obtain a coating which is heat resistant as taught by Hille et al. Hille et al do not teach that the coating has a gasoline permeability coefficient of $2 \text{ g} \cdot \text{mm}/\text{m}^2 \cdot \text{day}$ or less at 23 degrees Celsius and a relative humidity of 60% RH, but Kay teaches that polyurethane films are impermeable to liquids (column 8, lines 29 – 33); the coating taught by Hille et al is therefore impermeable to liquid, and therefore has a gasoline permeability coefficient of $2 \text{ g} \cdot \text{mm}/\text{m}^2 \cdot \text{day}$ or less at 23 degrees Celsius and a relative humidity of 60% RH.

With regard to Claims 3 – 4, the thermoplastic resin disclosed by Hata comprises polyolefin base resin (high density polyethylene; column 2, lines 35 – 40).

With regard to Claim 16, the coating disclosed by Hata et al is formed on the surface of the inside, as stated above, and is therefore formed at an area rate of 100%.

With regard to Claims 17 – 18, the fuel tank disclosed by Hata et al is molded (column 6, line 11), and is therefore equipped with molded parts for a fuel.

With regard to Claim 21, the thickness of the coating taught by Hille et al is 1 - 200 μm (column 11, lines 56 - 58).

3. Claims 5 - 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hata et al (U.S. Patent No. 6,033,749) in view of Hille et al (U.S. Patent No. 5,370,910) and Kay (U.S. Patent No. 5,713,842) and further in view of Ramanathan et al (U.S. Patent Publication No. 2003/0044553 A1).

Hata et al, Hille et al and Kay disclose a fuel vessel comprising a urethane coating as discussed above and comprising a polyurethane as discussed above. The vessel comprises a vinyl resin (column 3, line 26). With regard to Claims 5 - 6, Hata et al, Hille et al and Kay fail to disclose a tube.

Ramanathan et al teach a fuel vessel having that is a tube (having a cylindrical opening, therefore tubular, through the wall; paragraph 0073) for the purpose of obtaining a fuel vessel having barrier properties (paragraph 0023). One of ordinary skill in the art would therefore have recognized the advantage of providing for the tube of Ramanathan et al in Hata et al, Hille et al and Kay, which is comprises a fuel vessel, depending on the desired barrier properties of the end product.

It therefore would have been obvious for one of ordinary skill in the art at the time Applicant's invention was made to have provided for a tube in Hata et al, Hille et al and Kay in order to obtain a vessel having barrier properties as taught by Ramanathan et al.

4. Claims 8 - 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hata et al (U.S. Patent No. 6,033,749) in view of Hille et al (U.S. Patent No. 5,370,910)

and Kay (U.S. Patent No. 5,713,842) and further in view of Toyota et al (U.S. Patent No. 6,815,467).

Hata et al, Hille et al and Kay disclose a fuel vessel comprising a urethane comprising an active hydrogen containing compound and an organic polyisocyanate compound. With regard to Claims 8 – 14, Hata et al, Hille et al and Kay fail to disclose an active hydrogen – containing compound comprising an alkyleneoxide adduct of xylylenediamine in which the alkyleneoxide has 2 to 4 carbon atoms and a polyisocyanate compound comprising a reaction product of a polyfunctional isocyanate compound and a polyfunctional alcohol comprising C₂ to C₁₀ polyfunctional alcohols and a polyfunctional isocyanate comprising xylylenediisocyanate.

Toyota et al teach a urethane (column 14, lines 60 – 65) comprising an active hydrogen – containing compound comprising an alkyleneoxide adduct of xylylenediamine in which the alkyleneoxide has 2 to 4 carbon atoms (column 8, lines 66 – 67; column 9, lines 12 – 14) and a polyisocyanate compound comprising a reaction product of a polyfunctional isocyanate compound and a polyfunctional alcohol comprising C₂ to C₁₀ polyfunctional alcohols (modified polyisocyanate, therefore including polyisocyanates reacted with alcohols; column 8, line 16) and a polyfunctional isocyanate comprising xylylenediisocyanate (column 8, line 21) for the purpose of obtaining a urethane that is flexible (column 9, lines 39 – 41). One of ordinary skill in the art would therefore have recognized the advantage of providing for an active hydrogen – containing compound comprising an alkyleneoxide adduct of xylylenediamine in which the alkyleneoxide has 2 to 4 carbon atoms and a polyisocyanate compound comprising a reaction product of a polyfunctional isocyanate compound and a polyfunctional alcohol

comprising C₂ to C₁₀ polyfunctional alcohols and a polyfunctional isocyanate comprising xylylenediisocyanate in Hata et al, Hille et al and Kay, which comprises a coating, depending on the desired flexibility of the end product.

It therefore would have been obvious for one of ordinary skill in the art at the time Applicant's invention was made to have provided for an active hydrogen – containing compound comprising an alkyleneoxide adduct of xylylenediamine in which the alkyleneoxide has 2 to 4 carbon atoms and a polyisocyanate compound comprising a reaction product of a polyfunctional isocyanate compound and a polyfunctional alcohol comprising C₂ to C₁₀ polyfunctional alcohols and a polyfunctional isocyanate comprising xylylenediisocyanate in Hata et al, Hille et al and Kay in order to obtain a urethane that is flexible as taught by Toyota et al.

ANSWERS TO APPLICANT'S ARGUMENTS

5. Applicant's arguments regarding the rejections of the previous Action have been considered and have been found to be persuasive. The rejections are therefore withdrawn. The new rejections above are directed to Claims 1 – 14 and 16 – 22.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marc A Patterson whose telephone number is 571-272-1497. The examiner can normally be reached on Mon - Fri 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on 571-272-1498. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Marc A. Patterson 11/26/07
Marc A. Patterson, PhD.
Primary Examiner
Art Unit 1772